

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION

ORDER 91-026

AMENDING NPDES PERMITS FOR THE DISCHARGERS  
CITED HEREIN

The California Regional Water Quality Control Board, San Francisco Bay Region, (hereinafter called the Board), finds that:

1. The Dischargers listed below have been previously issued permits by this Board under the National Pollutant Discharge Elimination System (NPDES) in the Orders indicated below:

<u>Discharger</u>	<u>NPDES Number</u>	<u>Order Number</u>	<u>Date Issued</u>
Chevron USA, Richmond Refinery	CA0005134	87-073	6/17/87
Tosco Corp., Avon Refinery	CA0004961	88-053	4/20/88
Exxon Comp. USA, Benicia Refinery	CA0005550	90-096	6/20/90
Shell Oil Comp., Martinez Manuf. Complex	CA0005789	90-095	6/20/90
Union Oil Comp., San Francisco Refinery	CA0005053	89-002	1/18/89
Pacific Refining Company	CA0005096	90-104	7/18/90

2. The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on December 17, 1986, and the State Water Resources Control Board approved it on May 21, 1987.
3. The wastewater from the above dischargers goes into the following receiving waters:

<u>Discharger</u>	<u>Receiving Water</u>
Chevron	San Pablo Bay
Tosco	Suisun Bay
Exxon	Suisun Bay
Shell	Carquinez Strait
Union	San Pablo Bay
Pacific	San Pablo Bay

4. The beneficial uses of the above receiving waters are:

<u>Beneficial Use</u>	<u>San Pablo Bay</u>	<u>Suisun Bay</u>	<u>Carquinez Strait</u>
Industrial Service Supply	X	X	X
Navigation	X	X	X
Water Contact Recreation	X	X	X
Non-contact Water Recreation	X	X	X
Commercial and Sport Fishing	X	X	X
Wildlife Habitat	X	X	X
Preservation of Rare & Endangered Species	X	X	X
Fish Migration and Spawning	X	X	X
Shellfish Harvesting	X		
Estuarine Habitat	X	X	X

5. The dischargers named above have been identified as substantial point sources of selenium, a component of crude oil which is a part of their wastewater streams. Selenium has been found to bioaccumulate in San Francisco Bay organisms, and threatens beneficial uses of water such as estuarine habitat and preservation of rare and endangered species.
6. On September 28, 1990, the EPA announced its final decision on the lists required by Section 304L of the federal Clean Water Act. Section 304L required an identification of point sources whose discharges contribute to violations of narrative or numerical water quality standards. The above dischargers are listed because of health warnings on consumption of ducks issued by the State Department of Health Services. This warning was due to elevated tissue levels of selenium.
7. The above dischargers have reported the following recent selenium discharge levels;

(Mean Load, lb/day)

<u>Refinery</u>	<u>1989</u>	<u>1990</u>
Shell	3.3	5.0
Union	4.0	5.1
Chevron	1.5	1.6
Exxon	1.3	1.6
Tosco	0.7	0.5
Pacific	0.04	0.03
<u>Total:</u>	10.8	13.8

(Mean Concentration, ug/l)

<u>Refinery</u>	<u>1989</u>	<u>1990</u>
Shell	90.	110.
Union	270.	300.
Chevron	31.	27.
Exxon	53.	85.
Tosco	18.	11.
Pacific	24.	20.

8. Section 304L also required the Regional Board to develop individual control strategies (ICS) for the dischargers listed pursuant to it. An ICS must assure that through effluent limitations that applicable water quality standards are attained and beneficial uses are protected as soon as possible, but not later than 3 years from the date of adoption of the ICS. In this case, the ICS consists of an NPDES permit amendment to the above permits, requiring compliance with a selenium effluent limit within 3 years. The proposed effluent limits are derived from the EPA freshwater criteria of 5 ppb. The dischargers will be given the opportunity to propose alternate effluent limits based on site-specific objectives, but in order for such an alternate to be approved by this Board and the EPA, the proposed limits must be protective of all applicable beneficial uses, such as estuarine habitat and preservation of rare and endangered species, and must take into account the full bioaccumulation potential of the selenium that is discharged.
9. The above dischargers have previously been required to conduct source control and treatment assessment programs designed to reduce their selenium discharges to the range of 1, 10 and 50 parts per billion (ppb), but they do not yet have selenium effluent limits as required by Section 304L. Chevron is an exception, as their permit already contains a performance based limit.
- 10 Order 87-073, issued to Chevron USA on June 17, 1987, prescribed selenium concentration effluent limits for the wastewater discharge from the Richmond refinery. This Order was subsequently amended by Order 88-125, issued on July 20, 1988. Order 88-125 deleted the selenium concentration limits contained in Order 87-073, and instead required performance-based mass loading limits. A monthly average of 3.5 pounds per day, and a daily maximum of 3.7 pounds per day, was set. Since that time, Chevron undertook a study investigating selenium sources, and possible methods of removal of selenium from their effluent. After reviewing a number of options, they decided to recycle a portion of their effluent, reducing their mass discharge by at least 10%.

11. The Board and the U.S. Environmental Protection Agency believe that an increase in the emissions of selenium would be contrary to the requirements under Section 304(L) of the Clean Water Act. In addition, Federal and State antibacksliding and antidegradation regulations under the Clean Water Act apply, as beneficial uses in San Francisco Bay have been impaired due to selenium discharges. The Board therefore proposes to limit Tosco, Pacific Refining, and Chevron USA to their current selenium discharge by issuance of performance-based mass limits.
12. The issuance of waste discharge requirements for these dischargers is exempt from the provisions of Chapter 3 (commencing with Section 21110) of Division 13 of the Public Resources Code (CEQA) pursuant to Section 13389 of the California Water Code.
13. The Board has notified the dischargers and interested agencies and persons of its intent to amend waste discharge requirements for the discharges and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
14. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that:

- A. The NPDES permits as contained in the Orders cited in Finding 1 of this Order are amended as follows:
  1. The Dischargers named below shall comply with a selenium effluent limit of 50 parts per billion and the mass emission rate listed below, by December 12, 1993:

<u>Discharger:</u>	<u>Concentration Limit:</u> (daily maximum)	<u>Mass emission rate:</u> (running annual average)
Shell	50 ppb	2.13 lbs /day *
Union	50	0.85 *
Exxon	50	0.96 *
Tosco	50	**
Pacific	50	**
Chevron	50 ppb	**

\* Based on 50 ppb at 1990 average flow:  
(Shell: 5.1 MGD, Exxon: 2.3 MGD, Union: 2.03 MGD)

\*\* To be determined by the Board as soon as possible.

2. The Dischargers named above have the option to seek alternate effluent limits acceptable to both the Board and the EPA, in lieu of those listed above, pursuant to the tasks listed below:

a. Selenium removal and source control

<u>Tasks</u>	<u>Deadline</u>
Submit a statement noting intent to pursue an alternate limit. Also submit a study plan acceptable to the Executive Officer to evaluate the cost and effectiveness of removing selenium to achieve the above effluent limit. This plan is to consider all reasonable treatment and source control measures, including but not limited to crude source management, waste recycling, and operational modifications	April 12, 1991
Submit final report on cost/effectiveness of selenium control. Selenium studies previously or concurrently being conducted can be substituted with the concurrence of the Board's Executive Officer	December 12, 1991

b. Development of Water Quality-Based Objectives/limits

<u>Tasks</u>	<u>Deadline</u>
Submit a study plan acceptable to the Executive Officer for at least monthly monitoring of selenium concentrations in water, bivalve tissues and sediments along a distance gradient from the discharge outfall. This monitoring shall note the relative percentages of inorganic and organic selenium species. The study shall include bioassays and bioaccumulation analyses at locations and frequencies to be determined.	April 12, 1991
Submit a study plan for development of site-specific receiving water criteria for selenium. The study is to consider site-specific receiving water chemistry, selenium speciation, and resident species sensitivity, as well as the final results of the above beneficial use impact study.	June 12, 1991

Complete and submit final report on studies for development of site-specific receiving water criteria for selenium which are protective of applicable beneficial uses such as estuarine habitat and preservation of rare and endangered species. These criteria must also take into account the full bioaccumulation potential of the selenium that is discharged. Complete and submit a proposal for alternate effluent limits.

December 12, 1992

c. Final Compliance

Tasks

Deadline

Achieve compliance with the selenium effluent limit listed in item 1. above or an alternate to this limit which is approved by the Board and the EPA.

December 12, 1993

3. The Dischargers named below shall develop a CUSUM (cumulative sum) control chart for selenium mass loading. The CUSUM chart shall look at the cumulative sum or difference of the current selenium loadings from the 1990 annual average daily loading. A 12 month running account of these cumulative sums will be maintained and reported with the monthly Self-monitoring Report. This requirement will be in effect until full compliance with the final effluent limit is achieved by December 12, 1993.

Discharger: Shell, Union, Exxon, Tosco, Pacific, Chevron

4. The above dischargers will coordinate their investigations relative to proposing any selenium effluent limits to the extent possible with the Board's Regional Effects Monitoring Program, and with the Local Effects Monitoring Programs located within their individual NPDES permits.
- B. This Order shall serve as an amended National Pollutant Discharge Elimination System permit pursuant to Section 402 of the Federal Water Pollution Control Act, or amendments thereto, and shall take effect at the end of ten days from the date of hearing provided the Regional Administrator, EPA, has no objections.
- I, Steven R. Ritchie, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on February 20, 1991.

  
STEVEN R. RITCHIE  
Executive Officer